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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Earl W. McCune JR.

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Robert E. Krebs  
Thellen, Ried & Priest LLP  
P.O. Box 640640  
San Jose, CA 95164-0640

EXAMINER

TORRES, JUAN A

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/865,409	<b>Applicant(s)</b> MCCUNE, EARL W.	
	<b>Examiner</b> Juan A. Torres	<b>Art Unit</b> 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10192004</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

Claim 14 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claim, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 9/27/04.

Applicant's election without traverse of claims 1-13 in the reply filed on 9/27/04 is acknowledged.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6, 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nash (US 6317589).

As per claim 1, Nash (US 6317589) discloses a method of receiving a communications signal to produce two output signals in quadrature relation to one another, comprising: deriving two reference signals from a single clock signal (figure 3 block 112, column 3 line 55); using the two reference signals, performing frequency downconversion of the communications signal to produce the two output signals (figure 3 blocks 106 and 108, column 3 line 53-54); forming an error signal representing the

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expectation of the product of the two output signals (figure 3 block 316, column 4 line 8-15); and using the error signal to adjust a phase difference between the reference signals (figure 3 blocks 322, 324 and 314, column 2 line 15-22).

As per claim 6, Nash (US 6317589) discloses a receiver for receiving a communications signal to produce two output signals in quadrature relation to one another, comprising: a local oscillator (figure 3 block 212, column 3 line 55); an adjustable phase shift network for deriving two reference signals from the local oscillator (figure 3 block 314, column 3 line 58-60); means for, using the two reference signals, performing frequency downconversion of the communications signal to produce the two output signals (figure 3 blocks 106 and 308, column 3 line 53-54); and a phase error detection network for forming an error signal representing the expectation of the product of the two output signals (figure 3 block 316, column 4 line 8-15).

As per claim 7, Nash (US 6317589) discloses that the phase error detection network comprises a multiplier for multiplying the two output signals to form a product signal (figure 3 block 320, column 4 line 10-13).

As per claim 8, Nash (US 6317589) discloses that the phase error detection network comprises a low-pass filter for filtering the product signal to thereby produce the error signal (figure 3 block 322, column 4 line 17-19).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nash (US 6317589) as applied to claim 1 above, and further in view of Daudelin (US 4652775). Nash (US 6317589) teaches the recitation of claim 1. Nash (US 6317589) does not teach the use of delay element to adjust the phase difference. Daudelin (US 4652775) teaches that It is very well known the use of delay elements for adjusting the phase in a receiver (column 5 lines 44-47). The delay elements disclosed by Daudelin (US 4652775) can be incorporate in the system disclosed by Nash (US 6317589). It would have been obvious to one of ordinary skill in the art at the time the invention was made in order to provide an inexpensive and well known standard elements to adjust the phase of a signal to use a delay element to adjust the phase in the system taught by Nash (US 6317589) as it is disclose by Daudelin (US 4652775) for the purpose to adjust the phase different between the reference signals.

Claim 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nash (US 6317589) as applied to claim 6 above, and further in view of Acker (US 3800228).

As per claim 9 Nash (US 6317589) teaches the recitation of claim 6. Nash (US 6317589) doesn't teach the use of at least a delay line to adjust the phase difference. Acker (US 3800228) teaches the use of delay lines to adjust the phase in a receiver (column 10 lines 42-49). The delay lines disclosed by Acker (US 3800228) can be combine in the system disclosed by Nash (US 6317589). It would have been obvious to one of ordinary skill in the art at the time the invention was made in order to allow the

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use of an inexpensive and well known standard elements to adjust the phase of a signal to use the delay lines of Acker (US 3800228) for the purpose to adjust the phase different between the reference signals as disclosed by Nash (US 6317589).

As per claim 10 Nash (US 6317589) teaches the recitation of claim 6. Nash (US 6317589) doesn't teach the use of at least two delay lines to adjust the phase difference. Acker (US 3800228) teaches the use of delay lines to adjust the phase in a receiver (column 10 lines 42-49). The two delay lines disclosed by Acker (US 3800228) can be integrated in the system disclosed by Nash (US 6317589). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use two delay lines because that will allow to use shorter delay lines to adjust the phase of a signal as disclosed by Acker (US 3800228) for the purpose to adjust the phase different between the reference signals as disclosed by Nash (US 6317589).

Claim 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nash (US 6317589) as applied to claim 1 above, in view of Daudelin (US 4652775) and further in view of Acker (US 3800228).

As per claim 3 Nash (US 6317589) and Daudelin (US 4652775) teach the recitation of claim 2. Nash (US 6317589) and Daudelin (US 4652775) do not teach the use of a delay line to adjust the phase difference. Acker (US 3800228) teaches the use of delay line to adjust the phase in a receiver (column 10 lines 42-49). The delay line disclosed by Acker (US 3800228) can be incorporated in the system disclosed by Nash (US 6317589) and Daudelin (US 4652775). It would have been obvious to one of ordinary skill in the art at the time the invention was made in order to obtain an

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inexpensive and well known standard elements to adjust the phase of a signal, to use a delay line of Acker (US 3800228) for the purpose to adjust the phase different between the reference signals as disclosed by Nash (US 6317589) and Daudelin (US 4652775).

As per claim 4 Nash (US 6317589) and Daudelin (US 4652775) teach the recitation of claim 2. Nash (US 6317589) and Daudelin (US 4652775) do not teach the use of a manufactured adjusted delay line to adjust the phase difference. Acker (US 3800228) teaches the use of delay line to adjust the phase in a receiver (column 10 lines 42-49). The delay line disclosed by Acker (US 3800228) can be integrated in the system disclosed by Nash (US 6317589) and Daudelin (US 4652775). It would have been obvious to one of ordinary skill in the art at the time the invention was made to simplify the system, for the case of environments with very low phase variations to adjust the delay line disclosed by Acker (US 3800228) at the time of manufacture for the purpose to adjust the phase different between the reference signals as disclosed by Nash (US 6317589) and Daudelin (US 4652775).

As per claim 5 Nash (US 6317589) and Daudelin (US 4652775) teach the recitation of claim 2. Nash (US 6317589) and Daudelin (US 4652775) do not teach the use of a manufactured adjusted delay line to adjust the phase difference. Acker (US 3800228) teaches the use of delay line to adjust the phase in a receiver (column 10 lines 42-49). The delay line disclosed by Acker (US 3800228) can be included in the system disclosed by Nash (US 6317589) and Daudelin (US 4652775). It would have been obvious to one of ordinary skill in the art at the time the invention was made, because some environments have large phase variations, to adjust the delay line

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disclosed by Acker (US 3800228) automatically during the operation for the purpose to adjust the phase different between the reference signals as disclosed by Nash (US 6317589) and Daudelin (US 4652775).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nash (US 6317589) as applied to claim 1 above in view of Kumar (US 5835850). Nash (US 6317589) teaches the recitation of claim 6. Nash (US 6317589) doesn't teach the use of Gilbert-cell mixers for performing frequency down-conversion. Kumar (US 5835850) teaches the use of Gilbert-cell mixer to make frequency down-conversions in a receiver (column 5 lines 13-16). The Gilbert-cell mixers disclosed by Kumar (US 5835850) can be integrated in the system disclosed by Nash (US 6317589). It would have been obvious to one of ordinary skill in the art at the time the invention was made in order to provide a linear mixer in a broad band of frequencies to use Gilbert-cell mixers disclosed by Kumar (US 5835850) in the in the application taught by Nash (US 6317589) for the frequency down-conversion.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nash (US 6317589) as applied to claim 1 above in view of Hislop (US 4492960). Nash (US 6317589) teaches the recitation of claim 6. Nash (US 6317589) doesn't teach the use of switch-mode mixers for performing frequency down-conversion. Hislop (US 4492960) teaches the use of switch-mode mixers convert make frequency down-conversions in a receiver. The switch-mode mixer disclosed by Kumar (US 5835850) can be incorporated in the system disclosed by Nash (US 6317589). It would have been obvious to one of ordinary skill in the art at the time the invention was made in order to



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allow the use of less components in the receiver to use a local oscillator that at the same time is a variable attenuator using switch-mode mixers as disclosed by Hislop (US 4492960) in the in the application taught by Nash (US 6317589) for the frequency down-conversion.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nash (US 6317589) and Hislop (US 4492960) as applied to claim 13, and further in view of Hulkko (US 5734683). Nash (US 6317589) and Hislop (US 4492960) teach the recitation of claim 12, they do not teach the use of local oscillator with a frequency that is a sub-harmonic of the input frequency. Hulkko (US 5734683) teaches the use of local oscillators with a frequency that is a sub-harmonic of the input frequency. The local oscillator with a frequency that is a sub-harmonic of the input frequency disclosed by Hislop (US 4492960) can be integrated in the system disclosed by Nash (US 6317589) and Hislop 4492960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a sub-harmonic of the frequency of the communication signal as taught by Hulkko (US 5734683) in the in the application taught by Nash (US 6317589) and Hislop (US 4492960) for the frequency down-conversion because it will save power when making the design and implementation of the local oscillator.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on M-F 9:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT

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10/21/2004

M. Gh-

MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER